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On the Difference in Longitude between the Observatory of Paramatta and Port M'Quarrie. By Capt. O. Stanley, R.N.

Captain Stanley employed ten chronometers, and transported them with the utmost care, avoiding all tremulous motion which might affect their going. He and Lieutenant Gule each carefully ascertained the error of the working watch at Sydney and Paramatta, and so obtained independent results, which are as follow :—

	Difference of Longitude.
By Captain Stanley........................	52$^{\text{s}}$·89
Lieutenant Gule	52 ·85

This arc was measured by Sir Thomas Brisbane and M. Rümker, and again by Sir James Ross. Their results are 52$^{\text{s}}$·74 and 52$^{\text{s}}$·41 respectively.

Captain Stanley remarks, that there is a very perceptible personal equation between Lieutenant Gule and himself, in getting the time by equal altitudes with the sextant. Thus the errors of the working watch were, according to the two observers,—

		Capt. Owen. h m s	Lieut. Gule. h m s	Personal Eq$^{\text{n}}$. s
Sept. 1	Sydney	6 52 31·52	6 52 31·89	0·37
2	Paramatta	51 37·70	51 38·26	0·56
3	Sydney	6 52 30·05	6 52 30·71	0·66

Observations.

By Captain Bayfield, R.N. at his house, Charlotte Town, Prince Edward Island.

Occultations.

			Charlotte Town M.T. h m s	Longitude. h m s
1846 May 8	Spica	Imm.	9 31 43·72	4 12 32·03 W
		Em.	10 42 47·22	28·63
1847 Feb. 18	86 Piscium ζ	Imm.	6 4 26·5	28·14
	B.A.C. 369	Imm.	6 5 14·5	31·68
April 20	51 Gemin.	Imm.	10 53 55·0	4 12 36·83

West longitude of Captain Bayfield's house ...... 4 12 31·46 = 63° 7′ 52″
Observatory Bastion, Quebec, West of Charlotte Town............... 8 5 26

West longitude of Observatory Bastion, Quebec...... 71 13 18

"The time was well ascertained by equal altitudes before and after the observations, and carried on by ten chronometers. The emersion of *Spica* being at the bright limb, is probably two or three seconds late.

"The corrections of the moon's place have been furnished by the Astronomer Royal, and applied in the computations."

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The following eclipses of *Jupiter's* first satellite have also been observed by Captain Bayfield at the same place.

Immersions.

			Charlotte Town M.T. h m s	Longitude. h m s
1846	Oct.	8	9 7 27·20	4 12 23·10 W
		31	9 16 54·79	23·71
	Nov.	7	11 10 32·42	40·78
1847	Oct.	27	10 44 12·47	4 12 36·63
			Mean ...	4 12 31·05

Emersions.

			Charlotte Town M.T. h m s	Longitude. h m s
1843	August	27	9 47 46·11	4 12 24·19 W
1844	Jan.	14	5 50 23·13	21·67
1846	Feb.	4	10 56 36·30	27·00
1847	March	4	9 0 14·72	28·08
		20	7 20 55·52	24·08
1848	Jan.	22	6 10 38·72	4 12 23·18
			Mean	4 12 24·70 by Em.
				31·05 by Imm.

West longitude of Charlotte Town ...... =	4 12 27·88	= 63° 6′ 58″
Observatory Bastion, Quebec, West of Charlotte Town	....	8 5 26
West longitude of Observatory Bastion, Quebec	....	= 71 12 24

"The above eclipses were observed under favourable circumstances, with the same telescope and by the same observer."

Observations to determine the Latitude of Dera and the disturbing force of the Himalayas. By Captain Shortrede.

The latitude observations were made at Dera in 1841 with a 12-inch vertical circle of an altitude and azimuth circle, by Troughton and Simms, read by microscopes, and having a telescope 20 inches' focus, with 1·8 inch aperture.

Several altitudes of the stars were observed on each face, and near the meridian, to which they were reduced. The error and rate of the chronometer were found by transits of stars on opposite sides of the zenith.

The accordance of the observations, which are sufficiently numerous, is very satisfactory. The mean of the northern stars gives the latitude 30° 19′ 19″·93 N. of the southern stars 23″·81,

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